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Report of the second session of the

**WORKING PARTY ON BIOLOGICAL ACCUMULATORS
of the
ADVISORY COMMITTEE ON MARINE RESOURCES RESEARCH**

Rome, 21-25 July 1975

with the cooperation of the
United Nations Environment Programme



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS



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UNITED NATIONS ENVIRONMENT PROGRAMME

REPORT OF THE SECOND SESSION OF THE
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REPORT OF THE
SECOND SESSION OF THE ACMRR WORKING PARTY ON
BIOLOGICAL ACCUMULATORS

1. OPENING OF THE SESSION

The Second Session of the ACMRR Working Party on Biological Accumulators was held at FAO Headquarters, Rome, from 21 to 25 July 1975, under the chairmanship of Dr. J.E. Portmann. Dr. H. Kasahara, Director, Fishery Resources and Environment Division, welcomed the members (Annex I) to Rome and opened the session. Dr. Portmann apologized for the absence of Dr. Jensen and introduced Dr. S. Kečkeš, as an observer for the session, from UNEP.

2. ADOPTION OF THE AGENDA

The Agenda (Annex II) was adopted. It was agreed that the proposed manual should not be directed specifically to any proposed project. However, both Dr. Kasahara and Dr. Keckes emphasized that the FAO(GFCM)/UNEP Joint Coordinated Project on Pollution in the Mediterranean and the proposed Regional Laboratory for Aquatic Pollution in East Africa should be borne in mind when the individual papers were to be discussed and edited.

3. ELECTION OF RAPPORTEUR

Dr. J. Pentreath was elected Rapporteur for the session.

4. REVIEW OF DRAFT MANUAL

The individual papers which had been prepared for the meeting (Annex III) were then discussed, after each had been summarized by its author. All of the papers were generally accepted, with minor amendments emanating from comments made by other members of the Working Party. It was considered advisable to amplify the descriptive definitions, as given in the introductory paper, on monitoring/surveillance and pollutant/contaminant. It was appreciated that in some languages the distinction between the first pair does not exist. It was considered desirable, however, to edit all of the papers such that they refer to contaminants rather than pollutants, unless the chemical had been identified, in context, as falling within the GESAMP definition adopted in the First Session. Thus, all of the working papers have taken monitoring and surveillance to be synonymous but refer, in general, to contaminants. One other section of the introduction which also warranted amplification was that of inter-comparison of laboratory results. Since many intercalibration exercises already exist, and are managed by competent institutions with some experience, it was thought advisable to link any future intercalibration exercise to one already in existence. Future programmes may therefore profit from such experience already gained. An additional paragraph was added on the importance of species identification. Errors caused by misidentification of species can be as important as those caused by incorrect chemical analysis.

The order of the papers was slightly readjusted such that the first class of contaminants considered is that of radioactivity. This is a field which has accrued the greatest experience of the use of bioaccumulators for the surveillance of existing levels of marine contamination, and the monitoring of controlled releases to the environment. The paper also contains some general considerations on the kinetic aspects of accumulation and loss which are applicable to non-radioactive elements. In addition, since Part 1 of the Manual on Methods in Aquatic Environment Research: Methods for Detection, Measurement and Monitoring of Water Pollution, issued by FAO in 1975, does not include any sections on radiometrics, the methodology section is also more detailed. This section is therefore necessarily somewhat disproportionate in length.

The sections on trace elements other than radionuclides, on hydrocarbons and on chlorinated hydrocarbons were all adopted with only minor comments. Some general remarks were removed from the first of these papers and placed in the general introduction. Since the methodology germane to each section has been adequately covered in Part 1, only brief mention is made of this topic in each paper.

The section on guidelines for a pilot study on monitoring bio-accumulation by marine organisms was generally accepted. A number of comments, in many cases reflecting the experiences of members of the Working Party, were incorporated into this paper with the agreement of the author. The general statements have been taken as an ideal approach to the topic, with the full realization that not all of them are likely to be fully attainable. They nevertheless represent an ordered and systematic approach which, if adopted, would greatly benefit any proposed monitoring project.

Although the publication of Part 1 on the analytical techniques (cited above) had, to some extent, pre-empted a section on analytical methods, it was still considered desirable to include a paper on analytical problems. This paper briefly outlines the principal techniques involved, their levels of sensitivity, precision and problems of comparability. Some data were added to serve as a guide to the number of samples which might be processed by newly trained personnel. The list given is not intended, in any way, to be a standard output of work, and only a limited number of techniques is presented. Nevertheless, such information may well be of value in advance of personnel being trained, in order to achieve a pragmatic realization of the output attainable in the analytical phase of a monitoring programme. It should be realized that it is usually possible to collect more samples than can be analysed.

Finally, the paper on miscellaneous substances was discussed in the absence of its author. A number of comments were made and the Chairman agreed to send these to the author, with a request that any points which remain to be resolved should be communicated to him as soon as possible.

After a thorough discussion on the matrix table, which was completed as previously proposed, it was considered necessary, for the sake of clarity, to condense the table to a brief guide to the known use of bioaccumulators in monitoring studies. The entries have thus been limited to simple indications as to whether any organism has definitely been shown to be a good, or bad, indicator in field studies. Comments have been added where a failure to observe them has been shown to produce data which can easily be misinterpreted. Reference to the individual papers will provide more detailed information on all of the points indicated in the originally proposed table structure.

5. ARRANGEMENTS FOR THE MANUAL

It was agreed that the papers which had been discussed should be published in a manual, as separate chapters attributable to their main authors. The Chairman was invited to edit the manual and was charged with the task of immediately compiling the submitted papers with a view to publication before the end of 1975. No reprints of these papers will be produced, but up to 10 copies of the full document may be obtained on request by the authors.

6. PROPOSAL FOR FOLLOW-UP ACTION

Having completed discussion of the detailed content of the manual and its publication, the Working Party discussed the question of follow-up action. In this connexion, they noted that monitoring studies of a regional nature were being established in several parts of the world. Some of these will be conducted by many laboratories in different countries working in cooperation, e.g. the study about to commence in the Mediterranean. Others will be carried out by a single laboratory such as that now being considered by FAO in East Africa.

Whether these studies be of a purely baseline nature or whether they are planned on monitoring or surveillance scale, the Working Party considered that the guideline manual would provide useful background information at the detailed planning stage of any such study.

However, the Working Party considered that, although they had completed their task as originally posed, they recognized that the manual as at present compiled takes the form of a series of guidelines on what can be achieved and what precautions need to be taken rather than spelling out specifically what must be done. The Working Party considered that, after its manual has been used by a few regional studies at the planning stage, they would like to have a feed-back of comments and also the results of the first stage of the monitoring study. They further agreed that, in the light of such comments, it might be possible to develop the manual further on more specific lines and, if so requested, they would be prepared to undertake such a task; this could best be achieved by reconvening the Working Party with new terms of reference.

7. ANY OTHER MATTER

No other matters were discussed.

8. ADOPTION OF THE DRAFT REPORT

The Draft Report was adopted on 25 July 1975. Editorial changes were left to the Secretariat.

9. CLOSING OF THE MEETING

Dr. Kasahara thanked the Chairman and members of the Working Party for their constructive work, for their contributions to the manual, and closed the session on 25 July 1975.

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AGENDA

1. Opening of the Session
2. Adoption of the Agenda
3. Election of Rapporteur
4. Review of Draft Manual
 - (a) Introduction
 - (b) Monitoring Different Pollutant Classes Using Bioaccumulators
 - (c) Matrix Table
 - (d) Proposal for a Pilot Study on Monitoring
 - (e) Analytical Methods
5. Arrangements for Finalizing the Manual
6. Proposal for Follow-up Action
7. Other Matters
8. Adoption of Draft Report
9. Closing of the Session

LIST OF DOCUMENTS

- ACMRR/WP-BA/2/1 Draft Agenda
- 2 The Role of Biological Accumulators in Monitoring Programmes
by J.E. Portmann
 - 3 Monitoring Different Pollutant Classes Using Bioaccumulators:
Trace Elements other than Radionuclides
by E.F. Mandelli
 - 4 Monitoring Different Pollutant Classes Using Bioaccumulators:
Radionuclides
by J. Pentreath
 - 5 Monitoring Different Pollutant Classes Using Bioaccumulators:
Petroleum Hydrocarbons
by R.F. Lee
 - 6 Monitoring Different Pollutant Classes Using Bioaccumulators:
Chlorinated Hydrocarbons
by R.F. Addison
 - 7 Monitoring Different Pollutant Classes Using Bioaccumulators:
Miscellaneous Substances
by S. Jensen
 - 8 Pilot Study on Monitoring Bioaccumulators
by D.J. Reish
 - 9 Analytical Problems
by T. Yoshida
 - 10 Draft Report

